

What is claimed is:

In the claims:

1. A circular polishing pad for a rotary polisher comprising:

a. a first layer having an outer facing working surface for polishing a work piece and an opening; and

b. a second layer wherein at least a portion of said second layer comprises an at least partially transparent window, wherein the window is spaced from the working surface by substantially the thickness of the first surface and wherein said first layer is at least partially connected to said second layer, and wherein said first layer comprises at least one of the following properties

i) the first layer absorbs at least two percent by weight of polishing slurry based on total weight of said first layer;

ii) said first layer has a porosity of at least two percent by volume based on total volume of said first layer;

iii) said first layer has a percent volume compressibility greater than said second layer.

2. The polishing pad of claim 1 wherein said first layer absorbs at least 4% and less than 50% by weight of polishing slurry based on total weight of said first layer.

3. The polishing pad of claim 1 wherein said first layer is selected from particulate polymer and crosslinked polymer binder; particulate polymer and an organic polymer binder; sintered particles of thermoplastic resin; pressure sintered powder compacts of thermoplastic polymer; polymeric matrices impregnated with a plurality of polymeric microelements wherein each polymeric microelement can have a void space therein, or combinations thereof.

4. The polishing pad of claim 1 wherein said first layer has a thickness of at least 0.020 inches and less than a thickness of 0.150 inches.
5. The polishing pad of claim 1 wherein said second layer is selected from substantially non-volume compressible polymers and metallic films and foils.
6. The polishing pad of claim 1 wherein said second layer is selected from polyolefins; cellulose-based polymers; acrylics; polyesters and co-polyesters; polycarbonate; polyamides; high performance plastics; or mixtures thereof.
7. The polishing pad of claim 1 wherein said second layer is selected from low density polyethylene, high density polyethylene ultra-high molecular weight polyethylene or polypropylene; cellulose acetate or cellulose butyrate; PET or PETG; nylon 6/6 or nylon 6/12; polyetheretherketone, polyphenylene oxide, polysulfone, polyimide, or polyetherimide; or mixtures thereof.
8. The polishing pad of claim 1 wherein said second layer has a thickness of at least 0.0005 inches and said second layer has a thickness of less than 0.0650 inches.
9. The polishing pad of claim 1 wherein said first and second layers are at least partially connected by an adhesive material.
10. The polishing pad of claim 9 wherein said adhesive material is selected from contact adhesives, pressure sensitive adhesives, structural adhesives, hot melt adhesives, thermoplastic adhesives, and curable adhesives, thermosetting adhesives; and combinations thereof.
11. The polishing pad of claim 1 further comprising a third layer at least partially connected to said second layer, said third layer having an opening.
12. The polishing pad of claim 11 wherein said third layer is selected from natural rubber, synthetic rubbers, thermoplastic elastomer, foam sheet and combinations thereof.
13. The polishing pad of claim 11 wherein said third layer has a thickness of at least 0.04 inches and said third layer has a thickness of 0.100 inches or less.

14. The polishing pad of claim 11 wherein said first, second and third layers are at least partially connected by an adhesive material.

15. The polishing pad of claim 11 wherein said opening in said first layer, said window in said second layer and said opening in said third layer are at least partially aligned.

16. The polishing pad of claim 1 wherein said first layer has a percent volume compressibility of at least 0.3% when a load of 20 psi is applied.

17. The polishing pad of claim 1 wherein said first layer has a percent volume compressibility of 3% or less when a load of 20 psi is applied.

18. A polishing pad for a polisher comprising:

a. a first layer having an outer facing working surface for polishing a work piece and an opening; and

b. a second layer wherein at least a portion of said second layer comprises an at least partially transparent window, wherein the window is spaced from the working surface by substantially the thickness of the first surface and wherein said first layer is at least partially connected to said second layer, and wherein said first layer comprises at least one of the following properties

i) the first layer absorbs at least four percent by weight of polishing slurry based on total weight of said first layer;

ii) said first layer has a porosity of at least two percent by volume based on total volume of said first layer;

iii) said first layer has a percent volume compressibility greater than said second layer.

19. The polishing pad of claim 1 further comprising a third layer at least partially connected to said second layer, said third layer having an opening.

20. A rotary polishing pad comprising:

- a. a first layer having an opening;
- b. a second layer wherein at least a portion of said second layer comprises an at least partially transparent window; and
- c. a third layer having an opening, wherein said first layer is at least partially connected to said second layer and said second layer is at least partially connected to said third layer, wherein the window is spaced from the working surface by substantially the thickness of the first surface, and wherein said first layer comprises at least one of the following properties
  - i) the first layer absorbs at least two percent by weight of polishing slurry based on total weight of said first layer;
  - ii) said first layer has a porosity of at least two percent by volume based on total volume of said first layer;
  - iii) said first layer has a percent volume compressibility greater than said second layer; and
  - iv) said third layer is softer than said first layer.